

**PRACTICE TEST 2 - CHAPTER 8**

Beginning and Intermediate Algebra by Messersmith and Feldman, 4th edition

**Determine the domain of each rational function.**

1.  $f(z) = \frac{z+4}{z-1}$

2.  $f(w) = \frac{w+6}{w^2-3w-10}$

3.  $f(r) = \frac{r+7}{r^2-25}$

**Write the rational function in lowest terms.**

4.  $\frac{27-9n}{n^2-9}$

5.  $\frac{u^2+4u-45}{45-9u}$

6.  $\frac{3m^2-12m-63}{m+3}$

**Multiply and simplify the product, if possible.**

7.  $\frac{5k-8}{24k^4} \cdot \frac{56k^9}{(5k-8)^5}$

8.  $\frac{s^2-5s-6}{s-11} \cdot \frac{s^2-16s+55}{2s+2}$

**Divide and simplify the product, if possible.**

9.  $\frac{q^2-13q+36}{6q} \div (16-q^2)$

10.  $\frac{16-y^2}{20-5y} \div \frac{y^2+2y-8}{2y+3}$

11.  $\frac{9s^2}{64} \div \frac{21s^7}{49}$

**Find the LCD of each group of fractions.**

12.  $\frac{3}{10a^4b^2}, \frac{8}{15ab^4}$

13.  $\frac{3n}{n+2}, \frac{7}{n+5}$

14.  $\frac{6x}{x^2-10x+16}, \frac{3}{x^2-7x-8}$

**Add or subtract the rational expressions as indicated and simplify, if possible.**

$$15. \frac{6m}{m+5} + \frac{30}{m+5}$$

$$16. \frac{7}{4u^3} + \frac{3}{5u}$$

$$17. \frac{17}{x+5} + \frac{5}{x}$$

$$18. \frac{13t-7}{t(3t-8)} - \frac{7t+9}{t(3t-8)}$$

$$19. \frac{2t+40}{(t+8)(t+9)} + \frac{t^2+11t}{(t+8)(t+9)}$$

$$20. \frac{7g}{g^2+14g+45} + \frac{6}{g^2-81}$$

$$21. \frac{13}{f-4} + \frac{8}{4-f}$$

**Simplify the following complex fractions.**

$$22. \frac{5p + \frac{2}{p}}{p - \frac{13}{p}}$$

$$23. \frac{\frac{30x^2+40x}{x-5}}{\frac{8+6x}{15-3x}}$$

$$24. \frac{\frac{4}{w+1} + \frac{5}{w+2}}{\frac{5}{w+2} - \frac{3}{w+1}}$$

**Solve the following equations.**

$$25. \frac{7}{d+3} = \frac{14}{3d+5}$$

$$26. \frac{1}{3} - \frac{1}{z+2} = \frac{z+14}{3z^2-12}$$

$$27. \frac{3m}{m-4} - 1 = \frac{12}{m-4}$$

**Solve the following.**

28. With a current flowing at 8 mph, a boat can travel 9 miles downstream in the same amount of time it can travel 6 miles upstream. What is the speed of the boat in still water?
29. It takes Lily 45 minutes to mow the lawn. When she works with her brother, Preston, it only takes 30 minutes. How long would it take Preston to mow the lawn himself?
30. A nurse sets an intravenous fluid drip rate at 1000 mL for every 8 hours. How much fluid would the patient receive in 3 hours?

## Practice Test 2 Chapter 8 Answers

1.  $(-\infty, 1) \cup (1, \infty)$

2.  $(-\infty, -2) \cup (-2, 5) \cup (5, \infty)$

3.  $(-\infty, -5) \cup (-5, 5) \cup (5, \infty)$

4.  $-\frac{9}{n+3}$

5.  $\frac{-(u+9)}{9}$

6.  $3(m-7)$

7.  $\frac{7k^5}{3(5k-8)^4}$

8.  $\frac{(s-5)(s-6)}{2}$

9.  $\frac{9-q}{6q(4+q)}$

10.  $\frac{2y+3}{5(y-2)}$

11.  $\frac{21}{64s^5}$

12.  $30a^4b^4$

13.  $(n+2)(n+5)$

14.  $(x-8)(x-2)(x+1)$

15. 6

16.  $\frac{35+12u^2}{20u^3}$

17.  $\frac{22x+25}{x(x+5)}$

18.  $\frac{2}{t}$

19.  $\frac{t+5}{t+9}$

20.  $\frac{7g^2-57g+30}{(g+5)(g+9)(g-9)}$

21.  $\frac{5}{f-4}$

22.  $\frac{5p^2+2}{p^2-13}$

23.  $-15x$

24.  $\frac{9w+13}{2w-1}$

25.  $\{1\}$

26.  $\{6\}$

27.  $\emptyset$

28. 40 mph

29. 90 min.

30. 375 mL